Investigating the factors affecting the development of non-oil industrial sectors (industrial sector) in economy of Iran

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Abstract

This research investigates the trade and financial development of two important factors influencing the industrial growth in Iran based on the human capital model of Lucas's endogenous growth (1988). The auto-regression method with The auto-regression method with distributed lags (ARDL) during 1996 to 2019 is the econometric technique examined in this study.technique examined in this study. The average rate of tariffs and exports of non-oil goods as alternative variables of liberalization policies in the long run have significant, negative and positive effect on the value added of the industrial sector, respectively. The liquidity and domestic credit on the private sector as alternative variablesof monetary and financial markets in the long run has a significant positive and negative effect on the value added of the industry, respectively. Significance of ecm (-1) with -0.83 indicates that the long-run model explication principle is correct and all equilibrium relationships explained are from the explanatory variables tovariable dependent.

Keywords: ARDL, Trade liberalization, financial development, industrial value added, Iran

I.   Introduction

During the 1970s, a number of developing countries took great efforts into liberalizing their economies through reforms with the aim at increasing the role of market and reducing the barriers to international trade and capital transfer. In the 1980s, the successful experiences of several Southeast Asian countries such as Korea, Taiwan and Singapore motivated the development economy researchers and theorists throughout the work to do the reforms in addition to encouraging the policymakers and economic agents in other countries to follow and model them. The trade liberalization was considered as one of the main pillars of economic liberalization and different countries especially developing ones took attempts at trade liberalization with an overall change of approach due to the established World Trade Organization (WTO) and higher number of joined countries. In recent years, the explanation of relationship between the trade liberalization and economic growth in developing countries has been the main issue studied by development economists (Khataei et al, 1999).

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Other studies have investigated the impact of trade liberalization and financial development on the industry growth. However, since most of the countries simultaneously implement the policies of trade liberalization and financial development impact, this study seeks to simultaneously investigate the impact of trade liberalization and financial development impact on the value added of industry sector in Iran as well as determining the status of these policies on the economy of Iran.

The financial system has responsibilities which lead to the efficient allocation of resources by proper implementation. The financial system is at the center of intersection between the savers and end users of funds in the economy. As the intermediary of these funds, the financial system performs the following five main tasks.

1- Financial intermediaries perform the expensive, time-consuming and major task of evaluating the firms, managers, and plans; for instance, the banks assess the credit risk, and the firm's possible future income flow. The commercial banks, investment companies and banks evaluate the long-term growth of firms and products. The financial system, which has better performance in evaluating the firms, managers and plans, has the better chance to identify the best investments by community saving (Levine, 1990).

2- The financial system mobilizes the resources of small and dispersed savings to lead to the firms and plans formerly known as the best. Most of the projects require a huge initial investment and some of them benefit from the economic savings. Consequently, it is essential to allocate the enormous sources of capital to projects with substantial economic savings to ensure the best capital allocation. The financial system, which is in better in resource mobilization, expands the available and possible projects of economy (Sanginian, 2004).

3- The financial intermediaries and participants in financial markets provide the infrastructure for governance and control of firms and managers. The financial intermediaries help to ensure that the managers take attempts in line with the shareholders and creditors' benefits. Without such this control, the managers strongly likely use the firm's resources for their own interests and purposes (Stiglitz & Weiss, 1983).

4- The financial system facilitates the trade and exchange. At the lowest level, the money as one of the financial system tools minimizes the need for barter trade, reduces the transaction costs, encourages the trade and prompts the specialization. At a more complex level, the credit debit cards and payment and settlement system facilitate a large number of economic activities (Levine, 2003).

5- The financial system performs the risk pricing and provides its integration, modification and exchange mechanisms. The recent application of various futures options and contracts or forward transactions to avoid the more basic interest rate risks of financial institutions changes the maturity of assets and liabilities to meet the savers and investors' satisfaction. The securities like the shares and bonds, which have the maximum benefit for trade, may not have the degree of liquidity and the amount of risk which savers look for. In these cases, the financial intermediaries adapt the financial tools to customer needs and demands and thus implement the risk management (Nieuwerburgh & Buelens, 2006). Five outlined tasks indicate a positive and very important effect of financial system on the economic growth.

II.   Effect of financial development on the economic growth

Various theories are proposed by economists for relationship between the financial development and economic growth. In most of the traditional growth models, Solow (1965) suggests that the financial development affects the level of actual production through increasing the level of accumulated physical capital as well as enhancing the efficiency of capital, but it will have no effect on the economic growth in the long term. On the other hand, the studies such as research by Goldsmith (1969), Shaw and Mckinnon indicate a positive correlation between the financial development and economic growth. Some researchers like Townsend (1979), Diamont (1984), Boyd and Prescott (1986) have focused on the impact of financial development on the economic growth, while others such as Robinson (1952) and Patrick (1966) believe that the economic growth will increase and expand the financial markets. In the 1980s, some of the economists have suggested that the financial development has no significant effect on the economic growth (Lucas, 1988). Even some of them have not mentioned the financial development from the factors affecting the economic growth (Stern, 1989). The formation of endogenous growth models indicates a causal relationship between the financial development and the economic growth (Pagano, 1993). Based on these models, the new theoretical principles are created due to the impact of financial development on the economic growth. On this basis, it can be concluded that the financial development increases the economic growth through enhancing the saving rate and thus the investment rate, but then the saving is reduced and economic growth enhanced due to the occurrence of phenomena such as the risk participation and credit market. The studies by King and Levine (1993) and Yen C. Vinga and Smith (1991) are conducted in this regard. Furthermore, the study by Robin, Salay and Martin (1992) indicates a negative correlation between the economic growth and financial development index.

In general, the theoretical discussion on the effect of financial development on the economic growth indicate that if the financial system is able to reduce the cost of information, facilitate the exchanges, and perform a close examination of costs, it will lead to an increase in the economic growth. In other words, the way of impact by the financial development on the economic growth depends on the role of financial intermediaries in evaluating and fulfilling the ability of firms and employers that are attempting to innovate. Mobilizing the resources to meet the financial needs of innovative projects, creating the risk management, the role of financial intermediaries in the type of allocating the assets, the risk reduction, and finally predicting the expected profit, obtained by the industry due to utilizing the new technology resulted from the innovative activities can provide a context for economic growth (Nazifi, 2004: 100-103).

III.   Effect of trade liberalization on the economic growth

The relationship between the economic growth and trade liberalization has been widely investigated in the development and growth literature. The new theory of growth suggests an important perspective in the field of understanding the relationship between the trade and growth. On this basis, if the growth is sought by research and development activities (R & D), the trade provides the access for a country to technological knowledge of its companies; furthermore, the trade allows the manufacturers to access to greater markets, looks for the development of research and development (R & D) activities through enhancing the innovation and thus the developing countries access to capital and intermediate goods which are critical for development. Finally, if

the growth engine develops the new products, then the trade plays the important role in growth by providing the access to new inputs and outputs. The theoretical growth literature pays great attention to the relationship between the trade policies and growth rather than the relationship between the trade and growth. Therefore, the result of relationship between the trade restrictions and growth can not directly respond to the effects of change in the trade volume on the growth. Even if there is a limited relationship between these two concepts of trade volume and trade restrictions, perhaps their relationship with growth is considerably different. This difference is occurred since the external sector of a country is affected by several important factors such as the geographical factors, size of country, and its income. Different studies have utilized various criteria to test the effect of trade openness and economic growth and they can be classified into four general categories. The simple trade share, which is obtained from the exports plus imports divided by the GNP is the main criterion for openness. A large number of studies have utilized the trade share in GNP and found a strong positive relationship between the growth and openness. Considering the role of exports and imports in the growth regression is an important step for understanding the relationship between the international trade and growth and it is suggested by new theories of trade and growth. As Edwardes (1998) has found, one of the key features of recent growth literature is its higher emphasis on the exports. However, this point of view is hardly defensible in terms of international trade theory because according to the competitive advantage theory, the international trade makes it effective to use the resources of a country through imports of goods and services which are produced with too much cost inside the country. Thus, it can be concluded that the imports is as important as the exports for performance of economy. In fact, it is better to consider these two variables as the complementary, not the alternative.

The population density in growth regression can be utilized for measuring the trade openness of a country. The population density criterion, which is obtained from the ratio of total proportion to total areas, suggests that the countries with a higher density are more open and have higher international communications (Sachs & Warner, 1995).

The results of empirical studies indicate that the countries with higher density grow faster than the countries with lower density of population because the focus of production is on the production of industrial and export goods in these countries and this has a positive impact on their economic growth (Gorji and Alipourian, 2006: 191-189).

IV.   Type of data and model selection

This section of study presents the experimental study on the effect of fiscal government policies and trade liberalization on the industrial growth in Iran through the statistical data for the period of 1966-2019.

Due to the large number of explanatory variables (eight independent variables) and the lower volume of observations than the number of variables, the use of Johansen method and the vector autoregressive model do not provide the desired results, so the autoregressive distributed lag (ARDL) by Microfit software is applied in this regard. The procedure for achieving the optimal model will have the phased approach meaning that the initial model includes all explanatory variables obtained based on the theoretical principles. At the next stages, each of the variables, which have been different with theoretical principles in terms of sign or significance level, are eliminated from the model stage by stage.

In this model, the variables are applied in their natural logarithms. This is because we apply the linear regression coefficients directly as their elasticities.

Due to the availability of time series data and its association with production function of industry for economy of Iran, two criteria of trade liberalization including a real export variable as a measure for extroverted strategy and the average rate of import tariff are applied in this regard, The first criterion of liberalization is utilized for analyzing the effects of reducing the real value of domestic currency because such this reduction usually increases the tradable goods prices compared to non-tradable goods, thus this leads to the transfer of resources from the non-tradable to tradable sector. The second criterion of liberalization is applied for analyzing the effects of reduction in the price of imported goods compared to export goods due to the lower import tariff and this indicates the transfer of resources from the imports to exports industries. Two criteria of liquidity volume (M1) and domestic credit to private sector (M2) are utilized for financial industrial development.

Therefore, the obtained model for industrial production in the economy of Iran is as follows:

AVI=f(K ,HUMCUP,OILEXPO,TARIFF,M1,M2,EXPORT,DR,DUM)

The statistical data applied in estimating the model for the period of 1966-2019 is as follows:

1. VAI: The value added of industry to fixed prices of the year 1997 in billion Rials. Source: Statistical Center of Iran

2. K: Physical capital stock in industry and mining sector at constant prices of 1997 in billion Rials. Source: Bureau of Economic Accounts of the Central Bank

3. HUMCUP: The human capital (the active and employed population with higher education in terms of thousand people. Source: Statistical Center of Iran)

4. OILEXPO: Oil and gas exports (Million dollars). Source: Bureau of Economic Accounts of the Central Bank.

Since the oil exports is the main source of country's foreign exchange, the fluctuations of its resulted revenues have a significant impact on domestic economy, so that the increase in these revenues will lead to the economic prosperity and its reduction lead to the economic depression. Given that the oil price depends on the factors such as the economic factors (global supply and demand and production cost), political factors (political confrontations of producing and consuming countries), and the monopoly factors (OPEC and major oil companies), none of the countries are responsible for its determination, and thus they have always had significant fluctuations due to various reasons and thus the country's foreign exchange revenues are faced with fluctuations.

5. Tariff: The average rate of import tariff (resulted from dividing the tax on imports by the total imports (RLS)). Source: Computational data

6. M1: Liquidity volume. Source: Central Bank of Iran

7. M2: Domestic credit to private sector (percentage of GDP). Source: World Bank

8. Export: Non-oil exports at constant prices of 1997 in billion Rials. Source: Central Bank of Iran

The empirical and theoretical studies on the effect of exports, especially the manufacturing and industrial exports, on the economic growth pay attention to two basic points: First, in the export promotion policy, the firms seek to modify the management, improve the technology, and use the units with bigger scales in order to compete at the global level, and thus the allocation of resources will become better in the whole economy and the efficiency will be increased. And then, since the export is a part of national production, the enhanced exports will have the additive effect on production according to the multiplier coefficient rule. Paying attention to the statistics of non-oil exports provides two points: First, the ratio of non-oil exports to GDP is a quite insignificant figure (the best ratio was 6.4 percent in 1994), and second, the non-industrial goods make a major part of exports in studied period.

9. DR: Research cost (ratio of research budget to GNP) in RLS to RLS. Source: Leila Moradi's research in quarterly journal of Rahyaft, No. 14, and calculations based on the annual budget laws.

10. DUM: Dummy variable is equal to 1 for the years of revolution and imposed war and zero for other years.

V.   Unit root tests

The statistical properties of variables are significantly important while analyzing the cointegration. In fact, the cointegration method examines the adjustment between the statistical properties of variables through the theory. The economic variables are generally the unsteady and have the random process. The linear combination of unsteady series is generally an unsteady series. However, the cointegration is considered as an exception to this general rule and is closely associated with the economic theory because the economic theory implies the steady of a combination of economic variables (unsteady). Therefore, this study investigates both Generalized Dickey-Fuller and Phillips-Perron Tests. The results of test are reported in Tables 1 to 3 indicating that all variables are stabilized by a first-order difference. In other words, all variables were stationary with a time difference of the first order. In other words, the mentioned co-integrated variables are the first order and I (0). Since none of the variables are of the second order, I (2), so the ARDL method is used to examine the relationships between the variables.

Table 1. The reliability of the model variables at the surface state based on the ADF test

Variable	With intercept and trend			With intercept and without trend			Test result
	Critical value	ADF statistics	Number of optimal lags	Critical value	ADF statistics	Number of optimal lags	
LVAI	-3/53	-2/44	3	-2/94	-0/74	3	unsteady
LK	-3/53	-1/84	0	-2/94	-1/55	0	unsteady
LHUMCAP	-3/53	-2/60	2	-2/94	-0/74	3	unsteady

LOILEXPO	-3/53	-2/45	0	-2/94	-2/07	0	unsteady
LTARIFF	-3/53	-2/33	0	-2/94	-1/73	0	unsteady
LM1	-3/53	-1/59	1	-2/94	-0/17	3	unsteady
LM2	-3/53	-1/81	3	-2/94	-1/59	3	unsteady
LEXPORT	-3/53	-2/36	1	-2/94	-0/35	1	unsteady
LDR	-3/53	-3/83	0	-2/94	-3/57	0	Steady

Source: Research results

Table 2. Reliability of model variables atsurface state based on Philips-Peron test

Variable	With intercept and trend		With intercept and without trend		Test result
	Critical value at the level 5%	ADF statistics	Critical value at the level 5%	ADF statistics	
LVAI	-3/55	-2/44	-2/95	-1/36	unsteady
LK	-3/55	-2/30	-2/95	-1/91	unsteady
LHUMCAP	-3/55	-2/74	-2/95	-1/50	unsteady
LOILEXPO	-3/55	-2/20	-2/95	-1/77	unsteady
LTARIFF	-3/55	-2/17	-2/95	-1/93	unsteady
LM1	-3/55	-1/75	-2/95	-0/25	unsteady
LM2	-3/55	-1/78	-2/95	-1/48	unsteady
LEXPORT	-3/55	-1/95	-2/95	-0/12	unsteady
LDR	-3/55	-4/09	-2/95	-3/77	Steady

Source: Research results

Table 3. The reliability of the first difference of model variables by test

Variable	With intercept and trend	With intercept and without trend	Test result

	Critical value	ADF statistics	Number of optimal lags	Critical value	ADF statistics	Number of optimal lags	
dLVAI	-3/53	-5/23	0	-2/94	-5/29	0	Steady
dLK	-3/53	-3/81	0	-2/94	-3/87	0	Steady
dLHUMCAP	-3/53	-6/48	0	-2/94	-6/53	0	Steady
dLOILEXPO	-3/53	-5/99	0	-2/94	-6/06	0	Steady
dLTARIFF	-3/53	-6/46	0	-2/94	-6/37	0	Steady
dLM1	-3/53	-6/69	0	-2/94	-6/74	0	Steady
dLM2	-3/53	-5/60	0	-2/94	-5/59	0	Steady
dLEXPORT	-3/53	-4/39	0	-2/94	-4/39	0	Steady
dLDR	-3/53	-9/98	0	-2/94	-9/06	0	Steady

Source: Research Results

VI.   Estimation of model through ARDL method

The analysis has the ARDL type based on the interpretation of dynamic equation, long term and according to the error correction. At this stage, using the microfit software, the maximum lag was 2. Then, using the Bayesian-Schwarz criterion, the optimal lag was determined by whichindustrial value added, human capital, oil and gas exports, liquidity, non-oil exports, zero research costs, human capital, import tariffs, and domestic credit to a private sector are obtained and the model was estimated as ARDL (2,0,0,1,2,0,2,0,0,2) and the results of its short-run coefficients are presented in Table 4.

Table 4. Results of estimating the short-term coefficients of model ARDL(2,0,0,1,2,0.2,0,0,2)

Variable	Coefficients	T statistics	Confidence interval (90%)
LVAI(-1)	0.28	0.08	3.3513[.003]
LVAI(-2)	-0.11	0.07	-1.6308[.118]

LK	0.30	0.05	5.8483[.000]
LHUMCAP	0.20	0.09	2.2372[.036]
LOILEXPO	0.06	0.02	3.2159[.004]
LOILEXPO(-1)	-0.04	0.02	-1.9276[.068]
LTARIFF	0.03	0.03	1.3161[.202]
LTARIFF(-1)	-0.04	0.03	-1.4295[.168]
LTARIFF(-2)	-0.06	0.02	-2.4705[.022]
LM1	0.05	0.03	2.0631[.052]
LM2	-0.01	0.05	-.23990[.813]
LM2(-1)	0.16	0.07	2.4039[.026]
LM2(-2)	-0.26	0.06	-4.6220[.000]
LEXPORT	0.09	0.03	3.5971[.002]
LDR	0.02	0.01	2.6114[.016]
DUM	0.12	0.03	4.0758[.001]
DUM (-1)	-0.13	0.03	-4.3398[.000]
DUM (-2)	0.14	0.03	4.5256[.000]
C	2.78	0.56	4.9566[.000]

Source: Research Results

Tests for classical standard assumptions to ensure the estimation efficiency of the equations are also presented in Table 5. These results show that the model has no classical assumption problem, meaning that the null hypothesis cannot be rejected and there is no serial auto-correlation between the disturbance terms and variance heteroskedasticity, the functional form of the model is explicated welland the normal component distribution denotes theaccuracy of the results of estimated model. The coefficient of determination of the model is 90%, which indicates the high explanatory power of the model.

Table 5. The diagnostic tests of dynamic model (ARDL) (2,0,0,1,2,0,2,0,0,2)

Model information
R^2=0.90   f=1701.1[.000]   dw=2.14
A:Serial Correlation   F= 1.156 [.696]
B:Functional Form   F=.617 [.441]
C:Normality   Not applicable
D:Heteroscedasticity   F= 1.4010[.244]

Source: Research Results

After estimating the dynamic equation, we should ensure the long term relationship by doing a test. To perform the target test, the number 1 should be subtracted from the sum of coefficients with low dependent variable lag and then divide by the total standard deviation of coefficients. If the obtained absolute value of t, obtained from the absolute value of critical values provided by are Banerjee, Dolado and Master (1992), is larger, the null hypothesis is rejected and we accept a long term relationship. By doing this test, the computational t is obtained equal to -4.07, and since it is higher than the corresponding t to Banerjee, Dolado and Master Table equal to -3.47 in terms of absolute value, the null hypothesis based on no long term relationship is rejected and its existence accepted.

After ensuring the existence of a long-term relationship, we can interpret the long-term relationship. The results of this long term relationship are presented in Table (6). The results of long-term relationship indicate that the investment in industry equal to 36% and the human capital with higher education equal to 0.24 have the maximum significant impact on the developed value added of industry at the level of 5%.

 The coefficient of revenues from oil and gas exports is 0.02% but is not significant

The average rate of tariffs and exports of non-oil goods as alternative variables of liberalization policies in the long run have significant, negative and positive effect on the value added of the industrial sector, respectively. Increasing the tariff rate by 1% reduces the value added of the industry by 0.07% and by increasing 1% non-oil exports; the industry value added is increased by 0.11%.

The liquidity and domestic credit on the private sector as alternative variablesof monetary and financial markets in the long run has a significant positive and negative effect on the value added of the industry, respectively. With a 1% increase in the volume of liquidity, industry value added increased by 0.06% and with a 1% increase in domestic credit to the private sector, industry added value decreased by 0.13%.

The research cost coefficient is 0.03% and it is significant. With the 1% increase in the cost of research, the industry value added increases by 0.03%.

The dummy variable of revolution and war had a negative and significant effect on the growth of value added in the industrial sector. The Islamic Revolution with the war and shock inflicted on the country's economy have led to some changes such as the withdrawal of capital from the country and increased investment risk, reduced production and destruction of economic infrastructures ,etc. These factors had a negative and significant impact on the value added growth of the industry sector.

Long-term equation:

$$LVAI_t = 3.5 + 0.36LK_t + 0.24LHUMCAP_t - 0.02LOILEXPO_t - 0.07LTARIFF_t - 0.06LM1_t + 0.13LM2_t + 0.11LEXPORT_t + 0.03LDR_t + 0.16DUM_t$$

Table 6. Estimation of long-term model of ARDL

Variable	Coefficients	SD	[Prob]T statistics
LK	0.36	0.07	5.1873[.000]
LHUMCAP	0.24	0.10	2.4067[.025]
LOILEXPO	0.02	0.03	.69992[.492]
LTARIFF	-0.07	0.02	-3.1198[.005]
LM1	0.06	0.03	2.1061[.047]
LM2	-0.13	0.06	-2.3230[.030]
LEXPORT	0.11	0.03	3.3097[.003]
LDR	0.03	0.01	2.6769[.014]
DUM	0.16-	0.04	3.7718[.001]-
C	3.32	0.50	6.6350[.000]

Source: Research results

Afterwards, the ECM model is applied to investigate how the adjustment of short-term equilibrium is done in production towards the long term equilibrium. The ECM coefficient indicates that how many percentage of non-short-term equilibrium of production are adjusted for achieving the long term equilibrium and in other words it takes how many courses to reach a long term trend of production. The error correction coefficient is equal to 0.84 in this model. It indicates that 84% of non-equilibrium is adjusted in production and approaches the long-term trend.

Table 7. Short-term error correction model for autoregressive distributed lag (ARDL)

Variable	Coefficient	SD	T-Statistics [Prob]
dLVAI1	0.11	0.07	1.6308[.115]
dLK	0.30	0.05	5.8483[.000]
dLHUMCAP	0.20	0.09	2.2372[.034]
dLOILEXPO	0.06	0.02	3.2159[.004]
dLTARIFF	0.03	0.03	1.3161[.200]
dLTARIFF1	0.06	0.02	2.4705[.021]
dLM1	0.05-	0.03	2.0631[.050]-
dLM2	-0.01	0.05	-.23990[.812]
dLM21	0.26	0.06	4.6220[.000]
dLEXPORT	0.09	0.03	3.5971[.001]
dLDR	0.02	0.01	2.6114[.015]
dDUM	0.12	0.03	4.0758[.000]
dDUM	-0.14	0.03	-4.5256[.000]
ecm(-1)	-0.84	0.08	-10.0746[.000]

Source: Research results

VII. The stability test:

After making sure that the explicated model has no problem in terms of the underlying assumptions of regression, we evaluate the stability test. CUSUM and cusumsq tests were used to investigate the presence or absence of structural break down in the estimated model residuals. Charts 1 and 2 show the stability test for ARDL residual estimation. As can be seen, as the obtained statistical charts are between the upper and lower bound and the statistical value is not out of the critical range, it can be claimed that the residuals of the estimated model are stable and the coefficient stability hypothesis significant at the level 5% cannot be rejected. Therefore, the model is stable for long-term analysis and the results of the research are valid.
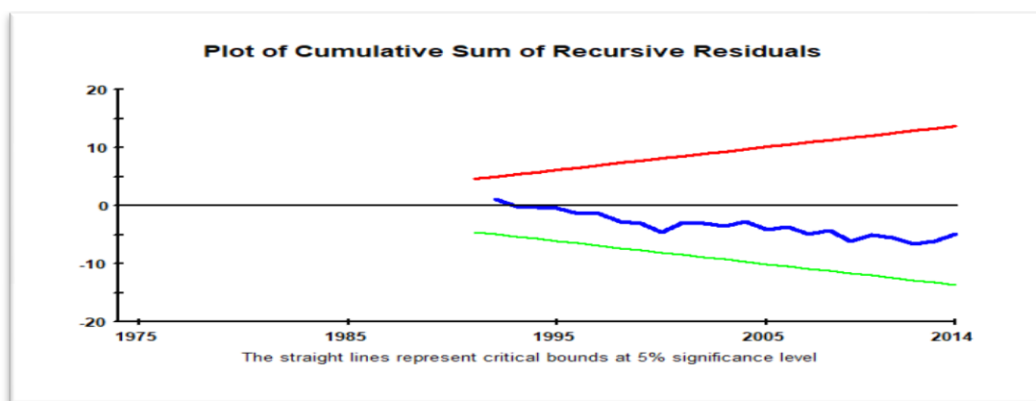
Chart 1. Cumulative Sum of Recursive Residuals (CUSUM)
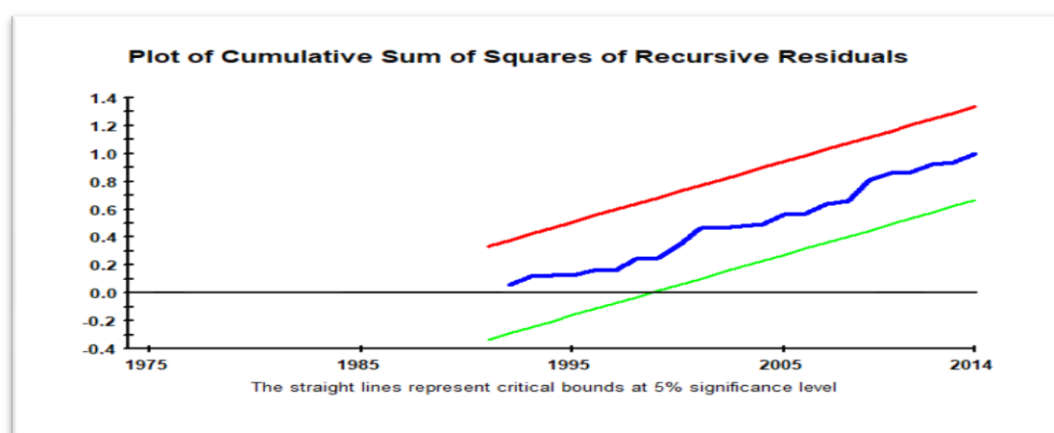
Source: microfit software output

Chart 2. Cumulative Sum of Squares of Recursive Residuals (CUSUMSQ)

Source: microfit software output

VIII.   Discussion and conclusion

The main results, which are obtained from this study, are as follows:

1-The industry value added coefficient (LVA (-1)) with a lag in the short term pattern is equal to 0.28 which is smaller than one and indicates that the short term model will converge to the long term model and it can be claimed that estimating the coefficients in the ARDL model is unbiased.

2-The variables of physical capital and human capital in the short and long run have a significant positive effect on the added value of the industry whose effects in the long run are stronger than the short run.

3-The coefficient of variable of oil and gas export value in the short run had a positive and significant effect on the added value of industry but in the long run, no significant relationship was found between the two variables.

4-The average rates of tariffs and exports of non-oil goods are considered as alternative variables to trade liberalization policies that in the long run have a significant, negative and positive effect on the value

added of the industry, respectively. Trade liberalization, when exposing the domestic enterprisesto competition, enhances their discipline and increases the efficiency of all firms, thereby increasing their productivity and increasing their exports, thus increasing industrial growth. By increasing the liberalization of imports, it is expected that by import of capital goods with advanced technology, the technology transfer to Iran is performed.

5-Volume of liquidity and domestic credit to the private sector are considered as alternative variables to financial development. The short-term and long-term liquidity volumes have a significant effect on the value added of the industry. In the short run, domestic credit to the private sector has a positive effect and in the long run has a significant negative effect on the value added of the industry. The negative effect is due to the state-owned banks in Iran and the government's involvement in the credits presentation to the economically inefficient companies and institutions.

6-Research costs in the short and long run have a significant positive effect on the value added of the industry. But the low research cost can be attributed to the very low cost of research to the GNP, which may be due to various reasons. For example, investments in research and development (R&D) activities in the industrial sector are small and insignificant, and cannot lead to technological change and dynamics in the industrial sector of the country.

7. The error correction coefficient and statistic, ecm (-1), is the main estimated coefficient in the short term model because this component describes the way of equilibrium relationship among the variables. The significant ecm (-1) with statistic of -10.07 indicates that the model is long term and all equilibrium relationships explained by the explanatory variables are towards the dependent variable and because the long term relationships do not indicate the causality and only refers to the equilibrium relationship among the variables. However, the significance level of ecm (-1) indicates that this assumption is correct in the long term.

IX.   Suggestions

This paper investigates the relationship between the trade policies (trade liberalization), fiscal policies and economic growth (Industrial sector) in economy of Iran. The experimental evidence indicates the long-term equilibrium relationship between the industrial value-added function and its determinants.

According to the result and recommendation of this paper, it can be concluded that the impact of trade restrictions such as the tariffs is significantly important on the one hand and the export promotion and employment of skilled labor (as the human capital) in industrial growth on the other hand because the industrial sector can be strengthened and high growth obtained in this industry by trade liberalization through reducing the tariffs and exports development as well as strengthening the expert and efficient manpower and adopting the policies consistent with the trade liberalization policy. Furthermore, due tothe important role of physical capital in production and industrial growth, we should take efforts to increase the saving and investment by creating the social security and safe place for investment, expanding and diversifying the markets and financial institutions (stock exchange, investment companies, private pension funds), moving towards the open economy and utilizing the foreign investment, as well as changing the capital market regulations with the aim of transparency and stability.

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